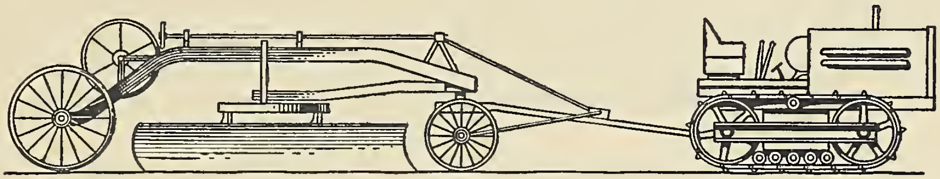
CONSTRUCTION



HINTS

UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE
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Installing new type governors on Chevrolet trucks

O. Weiderhold

Whenever the necessity arises for replacing the Handy governors on Chevrolet trucks with later design governors, the manifold restriction cone, <u>if present,</u> should be removed.

The governor manufacturers are being advised that governors should be calibrated to operate with this restriction removed. For this reason satisfactory results will not be obtained if the cone is present.

The cone and gasket assembly was supplied with the trucks when purchased new and was placed between the manifold and governor. Apparently the Handy governors with which the trucks were then equipped, were calibrated to operate satisfactorily with the cone in place.

(over)

Template for Rounding Cut Slopes in Highway Construction

by Milton Harris, Assoc. M. Am. Soc. C. E.
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The rounding off or "baldheading" of highway slopes is a recent construction innovation that has a two-fold purpose. It prevents the raveling of tops of slopes and the consequent accumulation of debris in the ditches, and also has an esthetic value in removing the harsh demarcations of cut slopes by gently curving their upper outline into the natural surrounding slope. To assist the workmen in constructing these rounding slopes uniformly, a template has been devised that, in addition, can be used to measure the excavation removed.

Recent specifications provide that the curvature of the rounded slopes be of such radius that the semi-tangents of the curve fitted to both cut slope and natural ground above be 5 ft., measured from the point of intersection of these slopes or from the position of the slope stake. Referring to Fig.1, it will be seen that the template consists of two movable legs and a sliding scale, or rule, all pinned together by a bolt and locked in position by a wing nut on the reverse side. A pointer on one leg indicates on the outer scale of the arc (Fig. 2) the external distance corresponding to the angle between the cut slope and the natural slope. The sliding rule actually measures the external distance.

When the reading on the sliding rule equals the arc reading, the bottom of the sliding rule rests on the circumference of an arc tangent to the legs at 5 ft. from the point of intersection of the slopes. The rule is set by eye at an angle that bisects the interior angle formed by the two legs. In actual use it has been found convenient to determine the indicated external, set the sliding rule to this external by digging a hole under it to the proper depth, clamp the template, mark the 5-ft points on the slopes, and excavate the material on a curve tangent to the three points indicated. The completed work is afterwards checked by applying the locked template to the excavated ground.

For example, suppose the cut slope and natural ground intersect at such an angle that the indicator reads 6-1/2 inches on the external scale. The ground is roughly excavated under the template arc so that the sliding rule rests in the excavated ground and reads $6\frac{1}{2}$ in. at the center pin. It is necessary to offset the scale on the rule in order to allow for the distance from the center pin to the lower edge of the legs.

Templates are applied along a slope at intervals dictated by the experience of the slopers. The beginning and ends of cuts may have a cut slope of less than 5 ft., in which case the opposite leg is laid parallel to the natural ground, the arc read for external, which is directly proportioned to the semi-tangent, and the measurement made by hand rule from the point of intersection of the ground slopes. It will be found, however, that an experienced sloper will warp his slopes from the full arc to zero at the ends of cuts by eye.

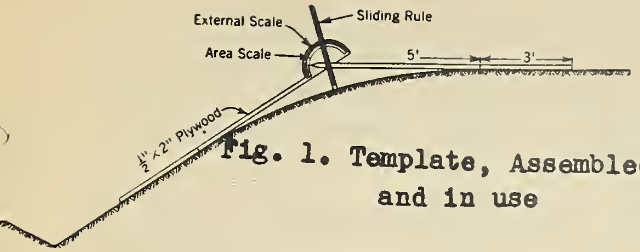

Fig. 1. Template, Assembled and in use

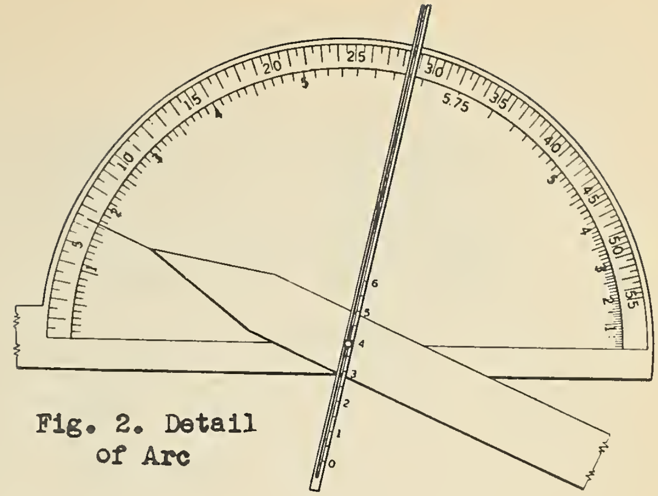

Fig. 2. Detail of Arc

Slope-rounding Operations

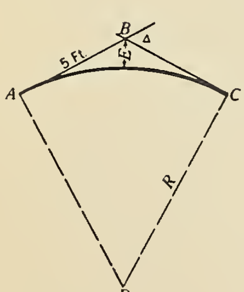

Fig. 3.

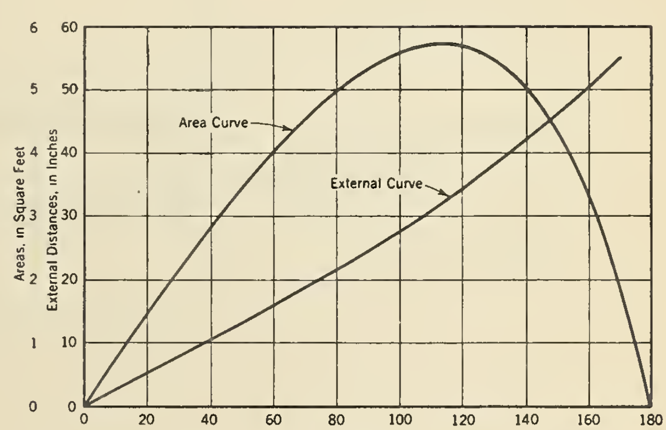

Fig. 4. Plot of Equations for Area and External

The inner scale on the arc (Fig. 2) gives the area of the portion removed for any given setting of the legs. From this the volume can be computed in the usual manner. This is a valuable adjunct where the rounding of slopes is paid for as extra or additional work. For semi-tangents other than 5 ft., the areas are proportional to the square of the semi-tangent.

The method of computing the arc scales is as follows (see Fig. 3):

$$\text{Area ABCD} = 5R$$

$$\text{Area ACD} = \frac{\pi R^2 \Delta}{360}$$

$$R = 5 \cot \frac{\Delta}{2}$$

$$\text{Area excavated} = 5R - \frac{\pi R^2 \Delta}{360} = 25 \cot \frac{\Delta}{2} - \frac{25 \pi \Delta}{360} \cot^2 \frac{\Delta}{2}$$

From the plot of this equation (Fig. 4), the even square feet and tenths can be transferred to the template arc by means of a large protractor.

Referring again to Fig. 3, $E = R \operatorname{exsec} \frac{\Delta}{2}$. Expressed in inches, $R = 60 \cot \frac{\Delta}{2}$. Therefore $E = 60 \cot \frac{\Delta}{2} \operatorname{exsec} \frac{\Delta}{2}$. This equation, also plotted on Fig. 4, can similarly be transferred to the template arc.

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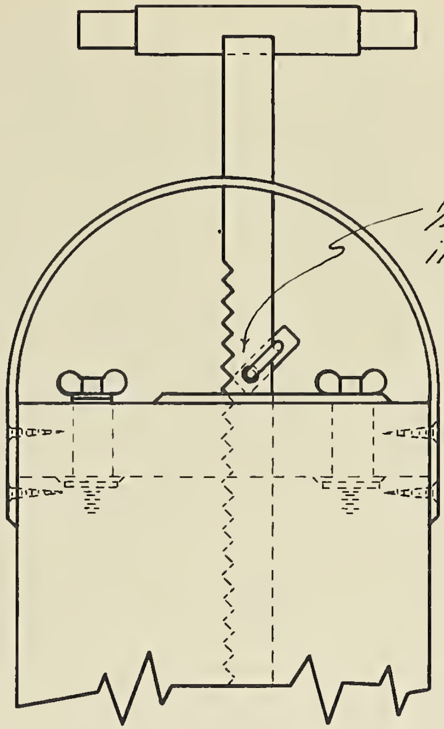
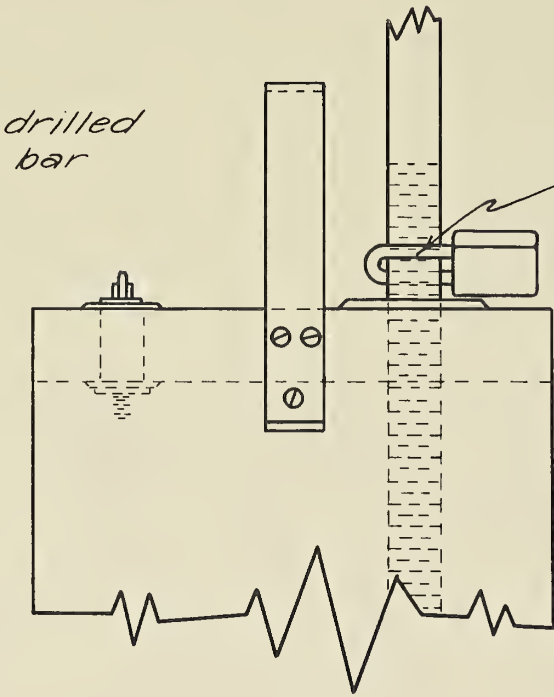
Signs of Safety

A careful driver is the best safety device known.

Remove side from battery. Raise bottom of rack bar above contact spring. Bore ¼" hole in rack bar at point where, when locked, rack bar can not strike contact spring.



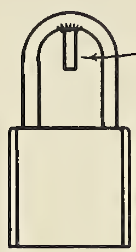
¼" hole drilled in rack bar



Use padlock with 3/16" diameter shackel

If shackel is not long enough to lock after insertion thru rack bar, weld 3/16" × 5/16" stud on center of shackle as shown in insert.

Place stud in hole in rack bar and lock.



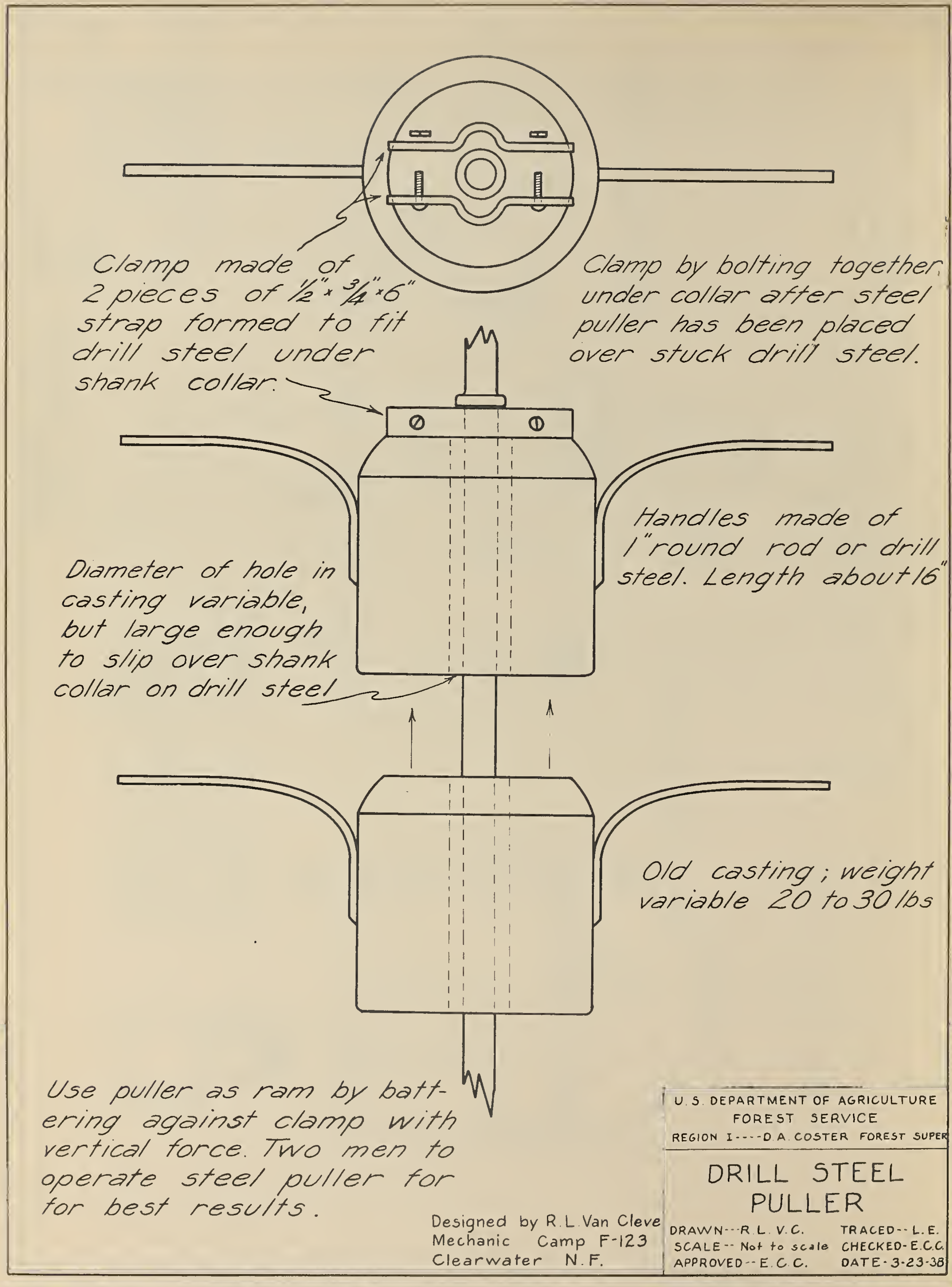
3/16" × 5/16" stud welded on shackle for use on locks with shackle not long enough to lock after insertion through rack bar.

Designed by R.L.Van Cleve
Mechanic Camp F-123
Clearwater N.F.

U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION I.----D.A COSTER-FOREST SUP.

LOCK FOR BLASTING MACHINE

DRAWN--- R.L.V.C.	TRACED-- L.E.
SCALE--Not to scale	CHECKED-E.C.C.
APPROVED-- E.C.C.	DATE 3-23-3



Designed by R.L. Van Cleve
Mechanic Camp F-123
Clearwater N.F.

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION I----D.A. COSTER FOREST SUPER

DRILL STEEL PULLER

DRAWN---R.L.V.C. TRACED--L.E.
SCALE-- Not to scale CHECKED-E.C.C.
APPROVED--E.C.C. DATE-3-23-38